CALIFORNIA DEPARTMENT OF JUSTICE
BUREAU OF FORENSIC SERVICES
PHYSICAL EVIDENCE BULLETIN

TOXICOLOGICAL ANALYSIS

The objective of the Toxicology Laboratory is to provide forensic toxicology services to law enforcement agencies throughout the State in regions where laboratory services are not available. Assistance is also provided to other county and agency laboratories in situations that are beyond their capabilities. The Toxicology Laboratory is accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board.

Services Offered

Driving Program

Toxicology service is provided for agencies submitting biological samples in cases involving violations of the Vehicle Code. The regional California Department of Justice (DOJ) Criminalistics Laboratory may send cases with blood alcohol concentrations (BAC) below 0.08% to the Toxicology Laboratory. The samples will be screened for the presence of specific classes of drugs and their metabolites by an immunoassay technique. A written '**Presumptive Result**" report will be issued to the district attorney with a copy sent to the submitting agency. The report incorporates both the results of the screening tests and the established cutoff levels for the particular drug classes screened. It also allows the agency to turn the report into a request to confirm the presumptive findings. **Confirmatory analysis, by gas chromatography/mass spectrometry (GC/MS), is required prior to the appearance of a toxicologist to interpret the results for court.**

The Toxicology Program is geared to assure that analytical results are provided well before the trial date. Because some analyses are labor intensive and require "batch processing," a confirmed analysis and final report can be assured only if requested two weeks prior to the trial date. Special circumstances and requests (i.e., in custody, will not waive time) are handled on a case-by-case basis through contact with the Assistant Laboratory Director.

11550 Health and Safety and Non-violent Felony Toxicology

Testing of biological samples from 11550 Health and Safety Code violators is also provided on a fee for service basis. This service can be provided with relatively quick turn around of the results, due to its limited nature. Agencies can choose either screen or screen and confirn panels. If drug screening is chosen, a '**Presumptive Results**" report may be issued within five working days of receipt of the sample. If the agency has contracted for a confirmed analytical result, it is limited to the drugs in the panel chosen and a final report will be issued within ten working days.

Violent Crime

Recognizing the diversity of activities of our client agencies, it is anticipated that some non-driving cases of an unusual nature, extraordinary significance or sensitivity warrant processing by the Toxicology Laboratory. Due to the limited staffing of the unit, non-driving cases are generally discouraged. However, the Bureau of Forensic Services recognizes its obligation to aid in these investigations. The intent of this service is to offer analysis of samples submitted from suspects of violent crimes and not deceased victims. Requests by the district attorney or agency for analyses and sample submission are made through the regional DOJ Criminalistics Laboratory serving the requesting agency. The manager or supervisor of the regional DOJ Criminalistics Laboratory will make a request on behalf of the submitting agency or district attorney for acceptance of cases of this nature. Approval will be only upon the authority of the Assistant Laboratory Director of Toxicology or his designee. The regional DOJ Criminalistics Laboratory receiving each case will be responsible for forwarding the samples to the Toxicology Laboratory and for returning the samples to the submitting agency. The Toxicology Laboratory will return the analyzed samples to the submitting DOJ Criminalistics Laboratory. Due to the nature of these cases, a comprehensive toxicological analysis will be performed which may require several weeks. Analysis is limited to drugs of abuse and many pharmaceutical drugs (see list below). Poisons (i.e., pesticides, toxins, carbon monoxide, etc.) and toxic metals (i.e., arsenic, lead, cyanide, etc.) will not be analyzed due to the lack of specialized equipment necessary for these analyses.

It is the intent of the Toxicology Laboratory to meet court and investigative time frames regarding the processing of evidentiary items. The analysis of specific drugs and metabolites will be given priority when needed to answer particular legal or investigative issues. An example of meeting investigative time frames would be providing a preliminary drug screen in a timely manner to hold a felony suspect to answer during the preliminary hearing phase of the judicial process. Confirmatory analysis could be performed at a later date with a lower priority, within two weeks. Communication with the prosecuting attorney will be established in these situations to determine what questions need to be answered and whether qualitative or quantitative drug analysis can best provide this information.

Samples Analyzed

Blood and urine samples should be submitted only in the sample containers approved by the California Department of Justice, Bureau of Forensic Services. Agencies who have contracted for 11550 Health and Safety toxicology will receive sample collection kits that are addressed to be returned directly to the Toxicology Laboratory. The US Postal Service approved kits are available to protect both the sample integrity and personnel that transport and handle the evidence. Instructions concerning the collection of the sample are included in the kit. The toxicologists can provide corroborative testimony as to anticoagulants and/or preservatives that have been included in these containers. The specific type of sample container may change as new developments in sample preservation and analyses are implemented. Blood is the preferred sample. With the exception of alcohol, the present pharmacological state of an individual cannot

be assessed by the finding of a drug in a urine sample. However, if there is a significant time period (greater than 12 hours) between the crime and collection of a sample from a living person, a urine sample may be a better sample. If in doubt, submit both blood and urine samples. The MINIMUM quantity of sample required to perform drug screening and confirmatory analyses and still provide sufficient quantity for referee analysis by the defendant is 5 milliliters for both blood and urine. Considerations must be made to collect another sample if an alcohol analysis is requested on the same sample and the initial collection provides less than 8 milliliters. The minimum requirement for alcohol determinations is 3 milliliters. In certain instances when information points to a particular drug or drug class and the request is limited to identification only, the amount of sample needed to perform the analysis may be less than the minimum of 5 milliliters. Contact the Toxicology Laboratory.

Samples other than blood or urine may be submitted, but only after consultation with the Toxicology Laboratory. Generally, with samples other than blood or urine, method development must be conducted, since such samples are not normally analyzed by the Toxicology Laboratory.

Methods of Analysis

Standard accepted methods of detection, confirmation and quantitation will be employed as warranted including, but not limited to: immunoassay, gas chromatography/mass spectrometry, and tandem mass spectrometry. Special methods may be applied for certain drugs.

Interpretation of Results

Pharmacological effects of drugs detected will be related to published clinical and analytical research data. Additionally, possible drug interactions will be described and their possible effects explained. It must be kept in mind that there is limited scientific literature on impairment by drugs other than alcohol. Therefore, results will be interpreted as to how an average individual would or could be theoretically affected by a drug or drugs. No attempt will be made by a toxicologist to interpret the effect(s) of a drug or drugs on an individual's thought processes or motivations, nor will there be any interpretation of possible effects of drugs on the intent of an individual to commit a crime. Such testimony would be the responsibility of a psychopharmacologist, a person who has a professional background in both psychology and pharmacology. If such testimony is needed, contact the Toxicology Laboratory for a list of potential experts.

Quantitation of the drug(s) found in blood samples is available upon request. However, quantitation of a drug in blood is of limited value. There is no scientific literature that relates quantity of drug in the blood stream to impairment, except in the instance of alcohol. If the drug(s) quantified is a prescription or over-the-counter drug, testimony will be given as to the relationship of the blood levels observed to published therapeutic, toxic, or lethal levels. It must be kept in mind that there are no "therapeutic" levels for many illicit drugs (e.g., phencyclidine).

Quantitation of the drug(s) found in urine samples is of no value for drugs other than alcohol.

The confirmation of a drug in a urine sample is of qualitative value only and indicates only a history of use. The qualitative identification of a drug in a urine sample is of some use in conjunction with information of physiological observations at the time of arrest (i.e., pupil size, the presence of nystagmus, blood pressure, heart rate, etc.). However, due to the variability of
absorption, distribution, metabolism, excretion and elimination of drugs between individuals, no correlation can be made between the presence of a drug in the urine and levels of drug in blood.

Case Information

All pertinent information concerning the suspect's behavior and any drugs and/or paraphernalia found on or around the suspect is of invaluable importance to the toxicologist. Arrest reports are useful and may be submitted with the request for toxicological analysis. Information of possible drug usage is particularly important where the sample available for analysis is limited. Specific information concerning drug usage or drugs in possession may also markedly reduce analysis and turn-around time.

Additional Information

For additional information on this program, please consult the Toxicology Laboratory. The Supervising Toxicologist and other members of the toxicology staff may be reached at (916) 227-3620 (CALNET 498-3620).

THE INITIAL IMMUNOASSAY SCREENING TEST WILL INCLUDE THE FOLLOWING DRUG CLASSES:

6 DRUG PANEL: Benzodiazepines, Cocaine, Marijuana, Methamphetamine, Opiates, and Phencyclidine.

THE CONFIRMATION PROCEDURES MAY IDENTIFY BUT ARE NOT LIMITED TO THE FOLLOWING LIST OF DRUGS/COMPOUNDS:

Acetaminophen
Alprazolam
Amantidine
Amitriptyline
Amobarbital
Amoxapine
Amphetamine (d & l)
Amyl Nitrite
Atropine
Barbiturates
Benzocaine
Benzphetamine
Benztropine
Brompheniramine
Bupropion
Buspirone
Butabarbital
Butalbital
Butorphanol
Caffeine
Carbamazepine
Carbomal
Carisoprodol
Cathinone
Chloral Hydrate
Chlordiazepoxide
Chlorimipramine
Chloroform
Chlorpheniramine
Chlorphentermine
Chlorpromazine
Chlorpropamide
Citalopram
Clomipramine
Clonazepam
Clonidine
Clozapine
Cocaethylene
Cocaine (and metabolites)
Codeine
Cyclobenzaprine
Desipramine
DET (Diethyltryptamine)
Dextromethorphan
Dextrorphan
Diacetylmorphine (Heroin)
Diazepam
Diethylpropion
Dihydrocodeine
Dihydrocodeinone (Hydrocodone)
Dihydromorphinone (Hydromorphone)
Diphenhydramine
DMT (Dimethyltryptamine)
Doxepin
Doxylamine
Ephedrine
Ethylchlorvynol
Ethylmorphine
Etrophine
Felbamate
Fentanyl
Flunitrazepam (and metabolites)
Fluoxitine (and metabolites)
Fluphenazine
Fluvoxamine
Gamma-Hydroxybutyrate (GHB)
Glutethimide
Haloperidol
Hydroxyzine
Ibuprofen
Imipramine
Ketamine
Levorphanol
Lidocaine
Lorazepam
Loxapine
LSD (Screen only at this time)
MDA (3,4-Methylenedioxyamphetamine)
MDMA (Methylenedioxymethamphetamine)
Meperidine (and metabolites)
Mephobarbital
Meprobamate
Mesoridazine
Methadone
Methamphetamine (d & l)
Methapyrilene
Methaqualone
Metharbital
Methcathinone
Methocarbamol
Methotrimeprazine
Methylphenidate
Methyprylon
Metoclopramide
Midazolam
Mirtazepine
Monoacetylmorphine (Heroin metabolite)
Morphine
Naloxone
Naproxen
Nicotinaminde
Nicotine
Nitrazepam
Nordiazepam
Nortriptyline
Orphenadrine
Oxazepam
Oxycodone
Oxymorphone
Paroxetine
PCE (PCP precursor)
Pentazocine
Pentobarbital
Phencyclidine (PCP)
Phendimetrazine
Phenelzine
Phenmetrazine
Phenobarbital
Phentermine
Phenylephedrine
Phenylpropanolamine
Phenyltoloxamine
Phenytoin
Prazosin
Primidone
Procainamide
Procaine
Prochlorperazine
Promazine
Promethazine
Propoxyphene (and metabolites)
Propylhexedrine
Pseudoephedrine
Quinidine
Quinine
Salicylic Acid
Scopolamine
Secobarbital
Sertraline
STP or DOM
Strychnine
Temezepam
THC (and metabolites)
Theophylline
Thioridazine
Toluene
Tramadol
Trazodone
Triazolam
Trifluoroperazine
Trihexylphenidyl
Tripelenamine
Valproic Acid
Venlafaxine
Verapamil
Zolpidem